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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,963	07/26/2001	George Earl Peterson	18	8322

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EXAMINER

CHEN, SHIH CHAO

ART UNIT

PAPER NUMBER

2821

DATE MAILED: 09/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/915,963

Applicant(s)

PETERSON, GEORGE EARL

Examiner

Shih-Chao Chen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 21-25 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 11 July 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 1-9 and 11-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Wicks et al. (US H2016 H).

Regarding claim 1, Wicks et al. teaches in figures 1-5 an antenna structure comprising: at least one antenna element [mono-blade antenna element], that at least one antenna element having at least one taper (See Figure 4); and a symmetrical ground plane [ground plane] coupled with the at least one antenna element [mono-blade antenna element].

Regarding claim 2, Wicks et al. teaches in figures 1-5 the antenna structure wherein the at least one antenna element [mono-blade antenna element] comprises a traveling wave antenna supporting a phase velocity greater than the speed of light.

Regarding claim 3, Wicks et al. teaches in figures 1-5 the antenna structure wherein the taper comprises a linear constant profile.

Regarding claim 4, Wicks et al. teaches in figures 1-5 the antenna structure wherein the antenna structure supports a cigar-like directional three-dimensional beam pattern and a butterfly wing-like directional three-dimensional beam pattern.

Regarding claim 5, Wicks et al. teaches in figures 1-5 the antenna structure wherein the at least one antenna element [mono-blade antenna element] is positioned at an angle from the symmetrical ground plane [ground plane].

Regarding claim 6, Wicks et al. teaches in figures 1-5 the antenna structure wherein the angle is about 90 degree with respect to the x-, y- and z-axes (See Figure 4).

Regarding claim 7, Wicks et al. teaches in figures 1-5 the antenna structure wherein the at least one antenna element [mono-blade antenna element] is coupled with the symmetrical ground plane [ground plane] by means of an unbalanced impedance [coaxial transmission line feed].

Regarding claim 8, Wicks et al. teaches in figures 1-5 the antenna structure wherein the unbalanced impedance [coaxial transmission line feed] comprises a coaxial cable.

Regarding claim 9, Wicks et al. teaches in figures 1-5 the antenna structure wherein a first conductor of the unbalanced impedance (See Figure 4) mechanically couples the at least one antenna element [mono-blade antenna element] with the symmetrical ground plane [ground plane].

Regarding claim 11, Wicks et al. teaches in figures 1-5 an antenna structure comprising: an array of at least two antenna elements (See Figure 5), each antenna

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element [mono-blade antenna element] having at least one taper; a symmetrical ground plane [ground plane]; and an unbalanced impedance [coaxial transmission line feed] for coupling the array of at least two antenna elements with the symmetrical ground plane [ground plane] (See col. 4, lines 7-13).

Regarding claim 12, Wicks et al. teaches in figures 1-5 the antenna structure wherein the at least one antenna element of the array (See Figure 5) comprises a traveling wave antenna supporting a phase velocity greater than the speed of light.

Regarding claim 13, Wicks et al. teaches in figures 1-5 the antenna structure wherein the taper of at least one antenna element of the array comprises a linear constant profile.

Regarding claim 14, Wicks et al. teaches in figures 1-5 the antenna structure wherein each antenna element of the array supports a cigar-like directional three-dimensional beam pattern and a butterfly wing-like directional three-dimensional beam pattern.

Regarding claim 15, Wicks et al. teaches in figures 1-5 the antenna structure wherein each antenna element [mono-blade antenna element] of the array is positioned at an angle from the symmetrical ground plane [ground plane].

Regarding claim 16, Wicks et al. teaches in figures 1-5 the antenna structure wherein the angle for each antenna element is about 90 degree with respect to the x-, y- and z-axes (See Figure 4).

Regarding claim 17, Wicks et al. teaches in figures 1-5 the antenna structure wherein the unbalanced impedance [coaxial transmission line feed] comprises a coaxial cable.

Regarding claim 18, Wicks et al. teaches in figures 1-5 the antenna structure wherein a first conductor of the unbalanced impedance (See Figure 4) mechanically couples each antenna element of the array with the symmetrical ground plane [ground plane].

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10, 19, and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wicks et al. (Cited above).

Wicks et al. teaches every feature of the claimed invention except for the symmetrical ground plane is disk shaped.

It would have been an obvious matter of design choice to have the symmetrical ground plane is disk shaped, since such a modification would have involved a mere change in the shape of the symmetrical ground plane. A change in shape is generally recognized as being within the level ordinary skill in the art.

Allowable Subject Matter

5. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose or fairly suggest the antenna structure further comprising a slow wave antenna to widen the directivity of the antenna structure as required by claim 20.

Response to Arguments

7. Applicant's arguments filed July 11, 2002 have been fully considered but they are not persuasive.

Applicant argues that the Wicks fails to teach or reasonably suggest a symmetrical ground plane. More specifically, in figures 1, 2a and 4, which is a typical depiction of an infinite ground plane. This argument is not deemed to be persuasive because the ground plane extends to infinity, this makes the ground plane symmetrical since extending to infinity is a form of translational symmetry.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

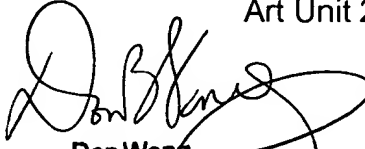
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (703) 306-2721. The examiner can normally be reached on Monday-Friday from 7 AM to 4:30 PM, First Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (703) 308-4856. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-5841 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Shih-Chao Chen
Examiner
Art Unit 2821

SXC
September 23, 2002


Don Wong
Supervisory Patent Examiner
Technology Center 2800